

**AMENDMENTS TO THE CLAIMS:**

Please amend claim 44, as shown below.

This listing of claims will replace all prior versions and listings of claims in the Application:

**Claim 1 (previously presented):** An image display apparatus comprising: a pixel having a drive transistor and a pixel display element which are electrically connected in series between a first power line and a second power line, a holding capacitor electrically connected to a gate electrode of said drive transistor, and a selection transistor electrically connected between a signal line and the gate electrode of said drive transistor; and a controller for turning on said selection transistor thereby to write gradation pixel data in said holding capacitor from said signal line, discharging charges of the gradation pixel data written in said holding capacitor through said drive transistor for a predetermined time less than a frame time, and thereafter floating the gate electrode of said drive transistor thereby to hold the charges of the gradation pixel data stored in said holding capacitor.

**Claim 2 (original):** The image display apparatus according to claim 1, further comprising: a display panel having a plurality of signal lines to which corresponding gradation pixel data are applied and a plurality of scanning lines to which scanning signals are applied, said pixel being positioned at each of points of intersection between said signal lines and said scanning lines; a signal line driver for applying said gradation pixel data to said signal lines based on a pixel input signal; and a scanning line driver for applying said scanning signals to said scanning lines; wherein said selection transistor has a first drain electrode, a first source electrode, and a first gate electrode, said drive transistor has a second drain electrode, a

second source electrode, and a second gate electrode, said holding capacitor holds a voltage between said second gate electrode and said second source electrode, and said pixel display element has a first electrode and a second electrode; wherein said first drain electrode/said first source electrode is connected to said signal line, said first source electrode/said first drain electrode is connected to said second gate electrode, said first gate electrode is connected to said scanning line, and said selection transistor performs on/off control of a conduction state between said signal line and said second gate electrode based on said scanning signal; wherein said first power line is connected to said second drain electrode, said second source electrode is connected to said first electrode, and said drive transistor passes an output current controlled based on a voltage held by said holding capacitor from said second source electrode to said first electrode; and wherein said second power line is connected to said second electrode, and said pixel display element displays a pixel at a gradation based on said output current of said drive transistor.

**Claim 3 (original):** The image display apparatus according to claim 2, wherein said scanning signals are applied to said scanning lines in a preset sequence.

**Claim 4 (original):** The image display apparatus according to claim 2, further comprising: a plurality of resetting signal lines to which resetting signals are applied; and a resetting signal line driver for applying said resetting signals to said resetting signal lines; wherein said pixel has a resetting transistor having a third drain electrode, a third source electrode, and a third gate electrode, and a parasitic capacitor is formed between said first electrode and said second electrode; wherein said third drain electrode/said third source electrode is connected to said second source electrode, said third source electrode/said third drain electrode is connected to

said second power line, said third gate electrode is connected to said resetting signal line, and said resetting transistor performs on/off control of a conduction state between said second source electrode and said second power line based on said resetting signal; and wherein said control means turns on said resetting transistor thereby to discharge said holding capacitor and said parasitic capacitor, and thereafter turns on said selection transistor.

**Claim 5 (original):** The image display apparatus according to claim 2, further comprising: a plurality of resetting signal lines to which resetting signals are applied; and a resetting signal line driver for applying said resetting signals to said resetting signal lines; wherein said pixel has a resetting transistor having a third drain electrode, a third source electrode, and a third gate electrode, and a parasitic capacitor is formed between said first electrode and said second electrode; wherein said third drain electrode/said third source electrode is connected to said second source electrode, said third source electrode/said third drain electrode is connected to said first power line, said third gate electrode is connected to said reset signal line, and said resetting transistor performs on/off control of a conduction state between said second source electrode and said first power line based on said resetting signal; and wherein said control means turns on said resetting transistor thereby to discharge said holding capacitor and said parasitic capacitor, and thereafter turns on said selection transistor.

**Claim 6 (previously presented):** The image display apparatus according to claim 2, wherein said pixel display element has a parasitic capacitor between said first electrode and said second electrode; and wherein said controller turns on said resetting transistor and supplies a resetting signal voltage from said signal line thereby to discharge said holding capacitor and said parasitic capacitor, and thereafter writes said gradation pixel data from said signal line in

said holding capacitor.

**Claim 7 (previously presented):** The image display apparatus according to claim 2, further comprising a power supply circuit for supplying a first power voltage and a second power voltage respectively for said first power line and said second power line to said display panel; wherein said pixel display element has a parasitic capacitor between said first electrode and said second electrode; and wherein said controller sets said first power voltage to a resetting signal voltage thereby to discharge said holding capacitor and said parasitic capacitor, and thereafter turns on said selection transistor thereby to write said gradation pixel data from said signal line in said holding capacitor.

**Claim 8 (previously presented):** The image display apparatus according to claim 1, further comprising: a display panel having a plurality of signal lines to which corresponding gradation pixel data are applied, a plurality of control lines to which control line drive signals are applied, and a plurality of scanning lines to which scanning signals are applied, said pixel being positioned at each of points of intersection between said signal lines and said scanning lines; a signal line driver for applying said gradation pixel data to said signal lines based on a pixel input signal; a scanning line driver for applying said scanning signals to said scanning lines; and a control line driver for applying said control line drive signals to said control lines; wherein said pixel has a control transistor having a third drain electrode, a third source electrode, and a third gate electrode; wherein said selection transistor has a first drain electrode, a first source electrode, and a first gate electrode, said drive transistor has a second drain electrode, a second source electrode, and a second gate electrode, said holding capacitor holds a voltage between said second gate electrode and said second source electrode, and each

pixel display element has a first electrode, a second electrode, and a parasitic capacitor between said first electrode and said second electrode; wherein said first drain electrode/said first source electrode is connected to said signal line, said first source electrode/said first drain electrode is connected to said second gate electrode, said first gate electrode is connected to said scanning line, and said selection transistor performs on/off control of a conduction state between said signal line and said second gate electrode based on said scanning signal; wherein said first power line is connected to said second source electrode, said drive transistor passes an output current controlled based on a voltage held by said holding capacitor from said second drain electrode to said first electrode; wherein said third drain electrode/said third source electrode is connected to said second gate electrode, said third source electrode/said third drain electrode is connected to said second drain electrode, said third gate electrode is connected to said control line, and said control transistor performs on/off control of a conduction state between said second gate electrode and said second drain electrode based on said control line drive signal; wherein said second power line is connected to said second electrode, and said pixel display element displays a pixel at a gradation based on said output current of said drive transistor; and wherein said controller turns on said selection transistor and turns off said control transistor thereby to write said gradation pixel data from said signal line in said holding capacitor, turns off said selection transistor and turns on said control transistor thereby to discharge charges of said gradation pixel data written in said holding capacitor through said drive transistor for a predetermined time, and thereafter turns off said control transistor thereby to float said second gate electrode to hold the charges of said gradation pixel data stored in said holding capacitor.

HAYES SOLDOWAY P.C.  
3450 E. SUNRISE DRIVE  
SUITE 140  
TUCSON, AZ 85718  
TEL. 520.882.7623  
FAX. 520.882.7643

175 CANAL STREET  
MANCHESTER, NH 03101  
TEL. 603.668.1400  
FAX. 603.668.8567

**Claim 9 (previously presented):** The image display apparatus according to claim 1, further comprising: a display panel having a plurality of signal lines to which corresponding gradation pixel data are applied, a plurality of control lines to which control line drive signals are applied, and a plurality of scanning lines to which scanning signals are applied, said pixel being positioned at each of points of intersection between said signal lines and said scanning lines; a signal line driver for applying said gradation pixel data to said signal lines based on a pixel input signal; a scanning line driver for applying said scanning signals to said scanning lines; and a control line driver for applying said control line drive signals to said control lines; wherein said pixel has a control transistor having a third drain electrode, a third source electrode, and a third gate electrode; wherein said selection transistor has a first drain electrode, a first source electrode, and a first gate electrode, said drive transistor has a second drain electrode, a second source electrode, and a second gate electrode, said holding capacitor holds a voltage between said second gate electrode and said second source electrode, and each pixel display element has a first electrode, a second electrode, and a parasitic capacitor between said first electrode and said second electrode; wherein said first drain electrode/said first source electrode is connected to said signal line, said first source electrode/said first drain electrode is connected to said second gate electrode, said first gate electrode is connected to said scanning line, and said selection transistor performs on/off control of a conduction state between said signal line and said second gate electrode based on said scanning signal; wherein said first power line is connected to said second source electrode, said drive transistor passes an output current controlled based on a voltage held by said holding capacitor from said second drain electrode to said first electrode; wherein said third drain electrode/said third

HAYES SOLOWAY P.C.  
3450 E. SUNRISE DRIVE  
SUITE 140  
TUCSON, AZ 85718  
TEL. 520.882.7623  
FAX. 520.882.7643

175 CANAL STREET  
MANCHESTER, NH 03101  
TEL. 603.668.1100  
FAX. 603.668.8567

source electrode is connected to said second gate electrode, said third source electrode/said third drain electrode is connected to said second drain electrode, said third gate electrode is connected to said control line, and said control transistor performs on/off control of a conduction state between said second gate electrode and said first drain electrode based on said control line drive signal; wherein said second power line is connected to said second electrode, and said pixel display element displays a pixel at a gradation based on said output current of said drive transistor; and wherein said controller turns on said selection transistor and turns on said control transistor thereby to write said gradation pixel data from said signal line in said holding capacitor, turns off said selection transistor and turns on said control transistor thereby to discharge charges of said gradation pixel data written in said holding capacitor through said drive transistor for a predetermined time, and thereafter turns off said control transistor thereby to float said second gate electrode to hold the charges of said gradation pixel data stored in said holding capacitor.

**Claim 10 (previously presented):** The image display apparatus according to claim 1, further comprising: a display panel having a plurality of signal lines to which corresponding gradation pixel data are applied, a plurality of control lines to which control line drive signals are applied, and a plurality of scanning lines to which scanning signals are applied, said pixel being positioned at each of points of intersection between said signal lines and said scanning lines; a signal line driver for applying said gradation pixel data to said signal lines based on a pixel input signal; a scanning line driver for applying said scanning signals to said scanning lines; and a control line driver for applying said control line drive signals to said control lines;

HAYES SOLOWAY P.C.  
3450 E. SUNRISE DRIVE  
SUITE 140  
TUCSON, AZ 85718  
TEL. 520.882.7623  
FAX. 520.882.7643

175 CANAL STREET  
MANCHESTER, NH 03101  
TEL. 603.668.1400  
FAX. 603.668.8567

wherein said pixel has a control transistor having a third drain electrode, a third source electrode, and a third gate electrode; wherein said selection transistor has a first drain electrode, a first source electrode, and a first gate electrode, said drive transistor has a second drain electrode, a second source electrode, and a second gate electrode, said holding capacitor holds a voltage between said second gate electrode and said second source electrode, and each pixel display element has a first electrode, a second electrode, and a parasitic capacitor between said first electrode and said second electrode; wherein said first drain electrode/said first source electrode is connected to said signal line, said first source electrode/said first drain electrode is connected to said second drain electrode, said first gate electrode is connected to said scanning line, and said selection transistor performs on/off control of a conduction state between said signal line and said second drain electrode based on said scanning signal; wherein said first power line is connected to said second source electrode, said drive transistor passes an output current controlled based on a voltage held by said holding capacitor from said second drain electrode to said first electrode; wherein said third drain electrode/said third source electrode is connected to said second gate electrode, said third source electrode/said third drain electrode is connected to said second drain electrode, said third gate electrode is connected to said control line, and said control transistor performs on/off control of a conduction state between said second gate electrode and said second drain electrode based on said control line drive signal; wherein said second power line is connected to said second electrode, and said pixel display element displays a pixel at a gradation based on said output current of said drive transistor; and wherein said controller turns on said selection transistor and turns on said control transistor thereby to write said gradation pixel data from said signal

HAYES SOLOWAY P.C.  
3450 E. SUNRISE DRIVE  
SUITE 1140  
TUCSON, AZ 85718  
TEL. 520.882.7623  
FAX. 520.892.7643

175 CANAL STREET  
MANCHESTER, NH 03101  
TEL. 603.668.1400  
FAX. 603.668.8567



line in said holding capacitor, turns off said selection transistor and turns on said control transistor thereby to discharge charges of said gradation pixel data written in said holding capacitor through said drive transistor for a predetermined time, and thereafter turns off said control transistor thereby to float said second gate electrode to hold the charges of said gradation pixel data stored in said holding capacitor.

**Claim 11 (previously presented):** The image display apparatus according to claim 1, further comprising: a display panel having a plurality of signal lines to which corresponding gradation pixel data are applied, a plurality of control lines to which control line drive signals are applied, and a plurality of scanning lines to which scanning signals are applied, said pixel being positioned at each of points of intersection between said signal lines and said scanning lines; a signal line driver for applying said gradation pixel data to said signal lines based on a pixel input signal; a scanning line driver for applying said scanning signals to said scanning lines; and a control line driver for applying said control line drive signals to said control lines; wherein each pixel has a control transistor having a third drain electrode, a third source electrode, and a third gate electrode, and an input drive transistor having a fourth drain electrode, a fourth source electrode, and a fourth gate electrode; wherein said selection transistor has a first drain electrode, a first source electrode, and a first gate electrode, said drive transistor has a second drain electrode, a second source electrode, and a second gate electrode, said holding capacitor holds a voltage between said second gate electrode and said second source electrode, and each pixel display element has a first electrode, a second electrode, and a parasitic capacitor between said first electrode and said second electrode; wherein said first drain electrode/said first source electrode is connected to said signal line,

HAYES SOLOWAY P.C.  
3450 E. SUNRISE DRIVE  
SUITE 140  
TUCSON, AZ 85718  
TEL. 520.882.7623  
FAX. 520.882.7643

175 CANAL STREET  
MANCHESTER, NH 03101  
TEL. 603.668.1400  
FAX. 603.668.8567

said first source electrode/said first drain electrode is connected to said third drain electrode/said third source electrode, said first gate electrode is connected to said scanning line, and said selection transistor performs on/off control of a conduction state between said signal line and said third drain electrode/said third source electrode based on said scanning signal; wherein said first power line is connected to said second source electrode, said drive transistor passes a first output current controlled based on a voltage held by said holding capacitor from said second drain electrode to said first electrode; wherein said third drain electrode/said third source electrode is connected to said first source electrode/said first drain electrode, said third source electrode/said third drain electrode is connected to said second gate electrode, said third gate electrode is connected to said control line, and said control transistor performs on/off control of a conduction state between said first source electrode/said first drain electrode and said second gate electrode based on said control line drive signal; wherein said first power line is connected to said fourth source electrode, said fourth drain electrode is connected to said first source electrode/said first drain electrode, said fourth gate electrode is connected to said second gate electrode, said input drive transistor passes a second output current controlled based on a voltage between said fourth source electrode and said fourth gate electrode from said fourth source electrode to said fourth drain electrode; wherein said second power line is connected to said second electrode, and said pixel display element displays a pixel at a gradation based on said first output current of said drive transistor; and wherein said controller turns on said selection transistor and turns on said control transistor thereby to write said gradation pixel data from said signal line in said holding capacitor, turns off said selection transistor and turns on said control transistor

HAYES SOLOWAY P.C.  
3450 E. SUNRISE DRIVE  
SUITE 140  
TUCSON, AZ 85718  
TEL. 520.882.7623  
FAX. 520.882.7643

175 CANAL STREET  
MANCHESTER, NH 03101  
TEL. 603.668.1400  
FAX. 603.668.8567

thereby to discharge charges of said gradation pixel data written in said holding capacitor through said input drive transistor for a predetermined time, and thereafter turns off said control transistor thereby to float said second gate electrode to hold the charges of said gradation pixel data stored in said holding capacitor.

**Claim 12 (previously presented):** The image display apparatus according to claim 1, further comprising: a display panel having a plurality of signal lines to which corresponding gradation pixel data are applied, a plurality of control lines to which control line drive signals are applied, and a plurality of scanning lines to which scanning signals are applied, said pixel being positioned at each of points of intersection between said signal lines and said scanning lines; a signal line driver for applying said gradation pixel data to said signal lines based on a pixel input signal; a scanning line driver for applying said scanning signals to said scanning lines; and a control line driver for applying said control line drive signals to said control lines; wherein said pixel has a control transistor having a third drain electrode, a third source electrode, and a third gate electrode, and an input drive transistor having a fourth drain electrode, a fourth source electrode, and a fourth gate electrode; wherein said selection transistor has a first drain electrode, a first source electrode, and a first gate electrode, said drive transistor has a second drain electrode, a second source electrode, and a second gate electrode, said holding capacitor holds a voltage between said second gate electrode and said second source electrode, and each pixel display element has a first electrode, a second electrode, and a parasitic capacitor between said first electrode and said second electrode; wherein said first drain electrode/said first source electrode is connected to said signal line, said first source electrode/said first drain electrode is connected to said third drain

HAYES SOLOWAY P.C.  
3450 E. SUNRISE DRIVE  
SUITE 140  
TUCSON, AZ 85718  
TEL. 520.882.7623  
FAX. 520.882.7643

175 CANAL STREET  
MAVCHESSTER, NH 03301  
TEL. 603.668.1400  
FAX. 603.668.8567

electrode/said third source electrode, said first gate electrode is connected to said scanning line, and said selection transistor performs on/off control of a conduction state between said signal line and said third drain electrode/said third source electrode based on said scanning signal; wherein said first power line is connected to said second source electrode, said drive transistor passes a first output current controlled based on a voltage held by said holding capacitor from said second drain electrode to said first electrode; wherein said third drain electrode/said third source electrode is connected to said first source electrode/said first drain electrode and said fourth gate electrode, said third source electrode/said third drain electrode is connected to said second gate electrode, said third gate electrode is connected to said control line, and said control transistor performs on/off control of a conduction state between said first source electrode/said first drain electrode and said second gate electrode based on said control line drive signal; wherein said first power line is connected to said fourth source electrode, said fourth drain electrode is connected to said first source electrode/said first drain electrode, said fourth gate electrode is connected to said fourth drain electrode, said input drive transistor passes a second output current controlled based on a voltage between said fourth source electrode and said fourth gate electrode from said fourth source electrode to said fourth drain electrode; wherein said second power line is connected to said second electrode, and said pixel display element displays a pixel at a gradation based on said first output current of said drive transistor; and wherein said controller turns on said selection transistor and turns on said control transistor thereby to write said gradation pixel data from said signal line in said holding capacitor, turns off said selection transistor and turns on said control transistor thereby to discharge charges of said gradation pixel data written in said holding capacitor

HAYES SOLOWAY P.C.  
3450 E. SUNRISE DRIVE  
SUITE 140  
TUCSON, AZ 85718  
TEL. 520.882.7623  
FAX. 520.882.7643

175 CANAL STREET  
MANCHESTER, NH 03101  
TEL. 603.668.1400  
FAX. 603.668.8567

through said input drive transistor for a predetermined time, and thereafter turns off said control transistor thereby to float said second gate electrode to hold the charges of said gradation pixel data stored in said holding capacitor.

**Claim 13 (original):** The image display apparatus according to claim 1, wherein said pixel display element comprises an organic electroluminescence element.

**Claim 14 (previously presented):** A control method for an image display apparatus including a pixel having a drive transistor and a pixel display element which are connected in series between a first power line and a second power line, a holding capacitor connected to a gate electrode of said drive transistor, and a selection transistor connected between a signal line and the gate electrode of said drive transistor, comprising: a pixel data writing step of turning on said selection transistor thereby to write gradation pixel data in said holding capacitor from said signal line; a discharging step of discharging charges of the gradation pixel data written in said holding capacitor through said drive transistor for a predetermined time less than a frame time; and after said discharging step, a pixel data holding step of floating the gate electrode of said drive transistor thereby to hold the charges of the gradation pixel data stored in said holding capacitor.

**Claim 15 (original):** The control method according to claim 14, wherein said image display apparatus further includes: a display panel having a plurality of signal lines to which corresponding gradation pixel data are applied and a plurality of scanning lines to which scanning signals are applied, said pixel being positioned at each of points of intersection between said signal lines and said scanning lines; a signal line driver for applying said gradation pixel data to said signal lines based on a pixel input signal; and a scanning line

HAYES SOLOWAY P.C.  
3450 E. SUNRISE DRIVE  
SUITE 140  
TUCSON, AZ 85718  
TEL. 520.882.7623  
FAX. 520.882.7643

175 CANAL STREET  
MANCHESTER, NH 03101  
TEL. 603.688.1400  
FAX. 603.688.8567

driver for applying said scanning signals to said scanning lines; wherein said selection transistor has a first drain electrode, a first source electrode, and a first gate electrode, said drive transistor has a second drain electrode, a second source electrode, and a second gate electrode, said holding capacitor holds a voltage between said second gate electrode and said second source electrode, and said pixel display element has a first electrode and a second electrode; wherein said first drain electrode/said first source electrode is connected to said signal line, said first source electrode/said first drain electrode is connected to said second gate electrode, said first gate electrode is connected to said scanning line, said selection transistor performs on/off control of a conduction state between said signal line and said second gate electrode based on said scanning signal; wherein said first power line is connected to said second drain electrode, said second source electrode is connected to said first electrode, and said drive transistor passes an output current controlled based on a voltage held by said holding capacitor from said second source electrode to said first electrode; and wherein said second power line is connected to said second electrode, and said pixel display element displays a pixel at a gradation based on said output current of said drive transistor.

**Claim 16 (original):** The control method according to claim 15, wherein said scanning signals are applied to said scanning lines in a preset sequence.

**Claim 17 (original):** The control method according to claim 15, wherein said image display apparatus further includes: a plurality of resetting signal lines to which resetting signals are applied; and a resetting signal line driver for applying said resetting signals to said resetting signal lines; wherein each pixel has a resetting transistor having a third drain electrode, a third source electrode, and a third gate electrode, and a parasitic capacitor is formed between said

HAYES SOLOWAY P.C.  
3450 E. SUNRISE DRIVE  
SUITE 140  
TUCSON, AZ 85718  
TEL. 520.882.7623  
FAX. 520.882.7643

175 CANAL STREET  
MANCHESTER, NH 03101  
TEL. 603.668.1400  
FAX. 603.668.8567

first electrode and said second electrode; wherein said third drain electrode/said third source electrode is connected to said second source electrode, said third source electrode/said third drain electrode is connected to said second power line, said third gate electrode is connected to said reset signal line, and said resetting transistor performs on/off control of a conduction state between said second source electrode and said second power line based on said resetting signal; and wherein said control method further comprises an additional discharging step of turning on said resetting transistor thereby to discharge said holding capacitor and said parasitic capacitor before said pixel data writing step; and wherein said selection transistor is turned off in said pixel data holding step to float said second gate electrode.

**Claim 18 (original):** The control method according to claim 15, wherein said image display apparatus includes: a plurality of resetting signal lines to which resetting signals are applied; and a resetting signal line driver for applying said resetting signals to said resetting signal lines; wherein each pixel has a resetting transistor having a third drain electrode, a third source electrode, and a third gate electrode, and a parasitic capacitor is formed between said first electrode and said second electrode; wherein said third drain electrode/said third source electrode is connected to said second source electrode, said third source electrode/said third drain electrode is connected to said first power line, said third gate electrode is connected to said resetting signal line, and said resetting transistor performs on/off control of a conduction state between said second source electrode and said first power line based on said resetting signal; and wherein said control method further comprises an additional discharging step of turning on said resetting transistor thereby to discharge said holding capacitor and said parasitic capacitor before said pixel data writing step; and wherein said selection transistor is

HAYES SOLOWAY P.C.  
3450 E. SUNRISE DRIVE  
SUITE 140  
TUCSON, AZ 85718  
TEL. 520.882.7623  
FAX. 520.882.7643

175 CANAL STREET  
MANCHESTER, NH 03101  
TEL. 603.668.1100  
FAX. 603.668.8567

turned off in said pixel data holding step to float said second gate electrode.

**Claim 19 (original):** The control method according to claim 15, wherein said pixel display element has a parasitic capacitor between said first electrode and said second electrode; and wherein said control method further comprises an additional discharging step of turning on said selection transistor and supplying a resetting signal voltage from said signal line thereby to discharge said holding capacitor and said parasitic capacitor before said pixel data writing step; and wherein said selection transistor is turned off in said pixel data holding step to float said second gate electrode.

**Claim 20 (original):** The control method according to claim 15, wherein said image display apparatus further includes a power supply circuit for supplying a first power voltage and a second power voltage respectively for said first power line and said second power line to said display panel; wherein said pixel display element has a parasitic capacitor between said first electrode and said second electrode; and wherein said control method further comprises an additional discharging step of setting said first power voltage to a resetting signal voltage thereby to discharge said holding capacitor and said parasitic capacitor before said pixel data writing step; and wherein said selection transistor is turned off in said pixel data holding step to float said second gate electrode.

**Claim 21 (original):** The control method according to claim 14, wherein said image display apparatus further includes: a display panel having a plurality of signal lines to which corresponding gradation pixel data are applied, a plurality of control lines to which control line drive signals are applied, and a plurality of scanning lines to which scanning signals are

HAYES SOLOWAY P.C.  
3450 E. SUNRISE DRIVE  
SUITE 140  
TUCSON, AZ 85718  
TEL. 520.882.7623  
FAX. 520.882.7643

175 CANAL STREET  
MANCHESTER, NH 03101  
TEL. 603.668.1400  
FAX. 603.668.8567



applied, said pixel being positioned at each of points of intersection between said signal lines and said scanning lines; a signal line driver for applying said gradation pixel data to said signal lines based on a pixel input signal; a scanning line driver for applying said scanning signals to said scanning lines; and a control line driver for applying said control line drive signals to said control lines; wherein said pixel has a control transistor having a third drain electrode, a third source electrode, and a third gate electrode; wherein said selection transistor has a first drain electrode, a first source electrode, and a first gate electrode, said drive transistor has a second drain electrode, a second source electrode, and a second gate electrode, said holding capacitor holds a voltage between said second gate electrode and said second source electrode, and each pixel display element has a first electrode, a second electrode, and a parasitic capacitor between said first electrode and said second electrode; wherein said first drain electrode/said first source electrode is connected to said signal line, said first source electrode/said first drain electrode is connected to said second gate electrode, said first gate electrode is connected to said scanning line, and said selection transistor, performs on/off control of a conduction state between said signal line and said second gate electrode based on said scanning signal; wherein said first power line is connected to said second source electrode, said drive transistor passes an output current controlled based on a voltage held by said holding capacitor from said second drain electrode to said first electrode; wherein said third drain electrode/said third source electrode is connected to said second gate electrode, said third source electrode/said third drain electrode is connected to said second drain electrode, said third gate electrode is connected to said control line, and said control transistor performs on/off control of a conduction state between said second gate electrode and said

HAYES SOLOWAY P.C.  
3450 E. SUNRISE DRIVE  
SUITE 140  
TUCSON, AZ 85718  
TEL. 520.882.7623  
FAX. 520.882.7643

175 CANAL STREET  
MANCHESTER, NH 03101  
TEL. 603.668.1400  
FAX. 603.668.8567

second drain electrode based on said control line drive signal; wherein said second power line is connected to said second electrode, and said pixel display element displays a pixel at a gradation based on said output current of said drive transistor; and wherein said selection transistor is turned on and said control transistor is turned off thereby to write said gradation pixel data from said signal line in said holding capacitor in said pixel data writing step; said selection transistor is turned off and said control transistor is turned on thereby to discharge charges of said gradation pixel data written in said holding capacitor through said drive transistor for a predetermined time in said discharging step; and said control transistor is turned off thereby to float said second gate electrode in said pixel data holding step.

**Claim 22 (original):** The control method according to claim 14, wherein said image display apparatus further includes: a display panel having a plurality of signal lines to which corresponding gradation pixel data are applied, a plurality of control lines to which control line drive signals are applied, and a plurality of scanning lines to which scanning signals are applied, said pixel being positioned at each of points of intersection between said signal lines and said scanning lines; a signal line driver for applying said gradation pixel data to said signal lines based on a pixel input signal; a scanning line driver for applying said scanning signals to said scanning lines; and a control line driver for applying said control line drive signals to said control lines; wherein said pixel has a control transistor having a third drain electrode, a third source electrode, and a third gate electrode; wherein said selection transistor has a first drain electrode, a first source electrode, and a first gate electrode, said drive transistor has a second drain electrode, a second source electrode, and a second gate electrode, said holding capacitor holds a voltage between said second gate electrode and said second

HAYES SOLOWAY P.C.  
3450 E. SUNRISE DRIVE  
SUITE 140  
TUCSON, AZ 85718  
TEL. 520.882.7623  
FAX. 520.882.7643

175 CANAL STREET  
MANCHESTER, NH 03101  
TEL. 603.668.1400  
FAX. 603.668.5567

source electrode, and each pixel display element has a first electrode, a second electrode, and a parasitic capacitor between said first electrode and said second electrode; wherein said first drain electrode/said first source electrode is connected to said signal line, said first source electrode/said first drain electrode is connected to said second gate electrode, said first gate electrode is connected to said scanning line, and said selection transistor performs on/off control of a conduction state between said signal line and said second gate electrode based on said scanning signal; wherein said first power line is connected to said second source electrode, said drive transistor passes an output current controlled based on a voltage held by said holding capacitor from said second drain electrode to said first electrode; wherein said third drain electrode/said third source electrode is connected to said second gate electrode, said third source electrode/said third drain electrode is connected to said second drain electrode, said third gate electrode is connected to said control line, and said control transistor performs on/off control of a conduction state between said second gate electrode and said first drain electrode based on said control line drive signal; wherein said second power line is connected to said second electrode, and said pixel display element displays a pixel at a gradation based on said output current of said drive transistor; and wherein said selection transistor is turned on and said control transistor is turned on thereby to write said gradation pixel data from said signal line in said holding capacitor in said pixel data writing step; said selection transistor is turned off and said control transistor is turned on thereby to discharge charges of said gradation pixel data written in said holding capacitor through said drive transistor for a predetermined time in said discharging step; said control transistor is turned off thereby to float said second gate electrode in said pixel data holding step.

HAYES SOLOWAY P.C.  
3450 E. SUNRISE DRIVE  
SUITE 140  
TUCSON, AZ 85718  
TEL. 520.882.7623  
FAX. 520.882.7643

175 CANAL STREET  
MANCHESTER, NH 03101  
TEL. 603.668.1400  
FAX. 603.668.8567

**Claim 23 (original):** The control method according to claim 14, wherein said image display apparatus further includes: a display panel having a plurality of signal lines to which corresponding gradation pixel data are applied, a plurality of control lines to which control line drive signals are applied, and a plurality of scanning lines to which scanning signals are applied, said pixel being positioned at each of points of intersection between said signal lines and said scanning lines; a signal line driver for applying said gradation pixel data to said signal lines based on a pixel input signal; a scanning line driver for applying said scanning signals to said scanning lines; and a control line driver for applying said control line drive signals to said control lines; wherein said pixel has a control transistor having a third drain electrode, a third source electrode, and a third gate electrode; wherein said selection transistor has a first drain electrode, a first source electrode, and a first gate electrode, said drive transistor has a second drain electrode, a second source electrode, and a second gate electrode, said holding capacitor holds a voltage between said second gate electrode and said second source electrode, and each pixel display element has a first electrode, a second electrode, and a parasitic capacitor between said first electrode and said second electrode; wherein said first drain electrode/said first source electrode is connected to said signal line, said first source electrode/said first drain electrode is connected to said second drain electrode, said first gate electrode is connected to said scanning line, and said selection transistor performs on/off control of a conduction state between said signal line and said second drain electrode based on said scanning signal; wherein said first power line is connected to said second source electrode, said drive transistor passes an output current controlled based on a voltage held by

HAYES SOLOWAY P.C.  
3450 E. SUNRISE DRIVE  
SUITE 140  
TUCSON, AZ 85718  
TEL. 520.882.7623  
FAX. 520.882.7643

175 CANAL STREET  
MANCHESTER, NH 03101  
TEL. 603.668.1400  
FAX. 603.668.8567

said holding capacitor from said second drain electrode to said first electrode; wherein said third drain electrode/said third source electrode is connected to said second gate electrode, said third source electrode/said third drain electrode is connected to said second drain electrode, said third gate electrode is connected to said control line, and said control transistor performs on/off control of a conduction state between said second gate electrode and said second drain electrode based on said control line drive signal; wherein said second power line is connected to said second electrode, and said pixel display element displays a pixel at a gradation based on said output current of said drive transistor; and wherein said selection transistor is turned on and said control transistor is turned on thereby to write said gradation pixel data from said signal line in said holding capacitor in said pixel data writing step; said selection transistor is turned off and said control transistor is turned on thereby to discharge charges of said gradation pixel data written in said holding capacitor through said drive transistor for a predetermined time in said discharging step; and said control transistor is turned off thereby to float said second gate electrode in said pixel data holding step.

**Claim 24 (original):** The control method according to claim 14, wherein said image display apparatus further includes: a display panel having a plurality of signal lines to which corresponding gradation pixel data are applied, a plurality of control lines to which control line drive signals are applied, and a plurality of scanning lines to which scanning signals are applied, said pixel being positioned at each of points of intersection between said signal lines and said scanning lines; a signal line driver for applying said gradation pixel data to said signal lines based on a pixel input signal; a scanning line driver for applying said scanning signals to said scanning lines; and a control line driver for applying said control line drive

HAYES SOLOWAY P.C.  
3450 E. SUNRISE DRIVE  
SUITE 140  
TUCSON, AZ 85718  
TEL. 520.882.7623  
FAX. 520.882.7543

175 CANAL STREET  
MANCHESTER, NH 03101  
TEL. 603.668.1400  
FAX. 603.668.8567

signals to said control lines; wherein said pixel has a control transistor having a third drain electrode, a third source electrode, and a third gate electrode, and an input drive transistor having a fourth drain electrode, a fourth source electrode, and a fourth gate electrode; wherein said selection transistor has a first drain electrode, a first source electrode, and a first gate electrode, said drive transistor has a second drain electrode, a second source electrode, and a second gate electrode, said holding capacitor holds a voltage between said second gate electrode and said second source electrode, and each pixel display element has a first electrode, a second electrode, and a parasitic capacitor between said first electrode and said second electrode; wherein said first drain electrode/said first source electrode is connected to said signal line, said first source electrode/said first drain electrode is connected to said third drain electrode/said third source electrode, said first gate electrode is connected to said scanning line, and said selection transistor performs on/off control of a conduction state between said signal line and said third drain electrode/said third source electrode based on said scanning signal; wherein said first power line is connected to said second source electrode, said drive transistor passes a first output current controlled based on a voltage held by said holding capacitor from said second drain electrode to said first electrode; wherein said third drain electrode/said third source electrode is connected to said first source electrode/said first drain electrode, said third source electrode/said third drain electrode is connected to said second gate electrode, said third gate electrode is connected to said control line, and said control transistor performs on/off control of a conduction state between said first source electrode/said first drain electrode and said second gate electrode based on said control line drive signal; wherein said first power line is connected to said fourth source electrode, said

HAYES SOLOWAY P.C.  
3450 E. SUNRISE DRIVE  
SUITE 140  
TUCSON, AZ 85718  
TEL. 520.882.7623  
FAX. 520.882.7643

175 CANAL STREET  
MANCHESTER, NH 03101  
TEL. 603.668.1400  
FAX. 603.668.8567

fourth drain electrode is connected to said first source electrode/said first drain electrode, said fourth gate electrode is connected to said second gate electrode, said input drive transistor passes a second output current controlled based on a voltage between said fourth source electrode and said fourth gate electrode from said fourth source electrode to said fourth drain electrode; wherein said second power line is connected to said second electrode, and said pixel display element displays a pixel at a gradation based on said first output current of said drive transistor; and wherein said selection transistor is turned on and said control transistor is turned on thereby to write said gradation pixel data from said signal line in said holding capacitor in said pixel data writing step; said selection transistor is turned off and said control transistor is turned on thereby to discharge charges of said gradation pixel data written in said holding capacitor through said input drive transistor for a predetermined time in said discharging step; and said control transistor is turned off thereby to float said second gate electrode in said pixel data holding step.

**Claim 25 (original):** The control method according to claim 13, wherein said image display apparatus further includes: a display panel having a plurality of signal lines to which corresponding gradation pixel data are applied, a plurality of control lines to which control line drive signals are applied, and a plurality of scanning lines to which scanning signals are applied, said pixel being positioned at each of points of intersection between said signal lines and said scanning lines; a signal line driver for applying said gradation pixel data to said signal lines based on a pixel input signal; a scanning line driver for applying said scanning signals to said scanning lines; and a control line driver for applying said control line drive signals to said control lines; wherein said pixel has a control transistor having a third drain

HAYES SOLOWAY P.C.  
3450 E. SUNRISE DRIVE  
SUITE 140  
TUCSON, AZ 85718  
TEL. 520.882.7623  
FAX. 520.882.7643

175 CANAL STREET  
MANCHESTER, NH 03101  
TEL. 603.668.1400  
FAX. 603.668.8567

electrode, a third source electrode, and a third gate electrode, and an input drive transistor having a fourth drain electrode, a fourth source electrode, and a fourth gate electrode; wherein said selection transistor has a first drain electrode, a first source electrode, and a first gate electrode, said drive transistor has a second drain electrode, a second source electrode, and a second gate electrode, said holding capacitor holds a voltage between said second gate electrode and said second source electrode, and each pixel display element has a first electrode, a second electrode, and a parasitic capacitor between said first electrode and said second electrode; wherein said first drain electrode/said first source electrode is connected to said signal line, said first source electrode/said first drain electrode is connected to said third drain electrode/said third source electrode, said first gate electrode is connected to said scanning line, and said selection transistor performs on/off control of a conduction state between said signal line and said third drain electrode/said third source electrode based on said scanning signal; wherein said first power line is connected to said second source electrode, said drive transistor passes a first output current controlled based on a voltage held by said holding capacitor from said second drain electrode to said first electrode; wherein said third drain electrode/said third source electrode is connected to said first source electrode/said first drain electrode and said fourth gate electrode, said third source electrode/said third drain electrode is connected to said second gate electrode, said third gate electrode is connected to said control line, and said control transistor performs on/off control of a conduction state between said first source electrode/said first drain electrode and said second gate electrode based on said control line drive signal; wherein said first power line is connected to said fourth source electrode, said fourth drain electrode is connected to said first source



electrode/said first drain electrode, said fourth gate electrode is connected to said fourth drain electrode, said input drive transistor passes a second output current controlled based on a voltage between said fourth source electrode and said fourth gate electrode from said fourth source electrode to said fourth drain electrode; wherein said second power line is connected to said second electrode, and said pixel display element displays a pixel at a gradation based on said first output current of said drive transistor; and wherein said selection transistor is turned on and said control transistor is turned on thereby to write said gradation pixel data from said signal line in said holding capacitor in said pixel data writing step; said selection transistor is turned off and said control transistor is turned on thereby to discharge charges of said gradation pixel data written in said holding capacitor through said input drive transistor for a predetermined time in said discharging step; and said control transistor is turned off thereby to float said second gate electrode in said pixel data holding step.

**Claim 26 (original):** The control method according to claim 14, wherein said pixel display element comprises an organic electroluminescence element.

**Claim 27 (withdrawn):** A drive circuit for a current control element, comprising: a drive transistor and a pixel display element which are connected in series between a first power line and a second power line; a holding capacitor connected to a gate electrode of said drive transistor; and a selection transistor connected between a signal line and the gate electrode of said drive transistor; wherein said selection transistor is turned on to input a first signal voltage from said signal line to discharge signal charges written in said holding capacitor through said drive transistor in a selection period of said drive circuit, thereafter a second signal voltage is input from said signal line and held in said holding capacitor, and said

selection transistor is turned off to pass a current through said drive transistor to said current control element in a non-selection period of said drive circuit.

**Claim 28 (withdrawn):** The drive circuit according to claim 27, wherein said holding capacitor is connected between a junction between said drive transistor and said current control element and the gate electrode of said drive transistor.

**Claim 29 (withdrawn):** The drive circuit according to claim 27, wherein a resetting signal voltage is input to said signal line to reset charges stored in said holding capacitor and a parasitic capacitor of said current control element in an initial stage of the selection period of said drive circuit.

**Claim 30 (withdrawn):** The drive circuit according to claim 27, wherein said drive transistor is turned on to set said first power line to a resetting signal voltage thereby to reset charges stored in said holding capacitor and a parasitic capacitor of said current control element in an initial stage of the selection period of said drive circuit.

**Claim 31 (withdrawn):** The drive circuit according to claim 27, wherein each of said selection transistor and said drive transistor comprises an N-channel field-effect transistor.

**Claim 32 (withdrawn):** The drive circuit according to claim 27, wherein each of said selection transistor and said drive transistor comprises a P-channel field-effect transistor.

**Claim 33 (withdrawn):** The drive circuit according to claim 27, further comprising: a switching transistor between the gate and source electrodes of said drive transistor; wherein said switching transistor is turned on to reset charges stored in said holding capacitor and a parasitic capacitor of said current control element in an initial stage of the selection period or the non-selection period of said drive circuit.

HAYES SOLOWAY P.C.  
3450 E. SUNRISE DRIVE  
SUITE 140  
TUCSON, AZ 85718  
TEL. 520.882.7623  
FAX. 520.882.7643

175 CANAL STREET  
MANCHESTER, NH 03101  
TEL. 603.668.1400  
FAX. 603.668.8567

**Claim 34 (withdrawn):** The drive circuit according to claim 27, further comprising: a switching transistor between the gate electrode of said drive transistor and said second power line; wherein said switching transistor is turned on to reset charges stored in said holding capacitor and a parasitic capacitor of said current control element in an initial stage of the selection period or the non-selection period of said drive circuit.

**Claim 35 (withdrawn):** The drive circuit according to claim 33, wherein each of said selection transistor, said drive transistor, and said switching transistor comprises an N-channel field-effect transistor.

**Claim 36 (withdrawn):** The drive circuit according to claim 34, wherein each of said selection transistor, said drive transistor, and said switching transistor comprises an N-channel field-effect transistor.

**Claim 37 (withdrawn):** The drive circuit according to claim 33, wherein each of said selection transistor, said drive transistor, and said switching transistor comprises a P-channel field-effect transistor.

**Claim 38 (withdrawn):** The drive circuit according to claim 34, wherein each of said selection transistor, said drive transistor, and said switching transistor comprises a P-channel field-effect transistor.

**Claim 39 (withdrawn):** A drive method for a drive circuit including a drive transistor and a pixel display element which are connected in series between a first power line and a second power line, a holding capacitor connected to a gate electrode of said drive transistor, and a selection transistor connected between a signal line and the gate electrode of said drive

transistor, the drive method comprising the steps of: turning on said selection transistor to input a first signal voltage from said signal line to discharge signal charges written in said holding capacitor through said drive transistor in a selection period of said drive circuit; inputting a second signal voltage from said signal line and holding the second signal voltage in said holding capacitor, and turning off said selection transistor to pass a current through said drive transistor to said current control element in a non-selection period of said drive circuit.

**Claim 40 (withdrawn):** The drive method according to claim 39, wherein said holding capacitor is connected between a junction between said drive transistor and said current control element and the gate electrode of said drive transistor.

**Claim 41 (withdrawn):** The drive method according to claim 39, wherein a resetting signal voltage is input to said signal line to reset charges stored in said holding capacitor and a parasitic capacitor of said current control element in an initial stage of the selection period of said drive circuit.

**Claim 42 (withdrawn):** The drive method according to claim 39, wherein said drive transistor is turned on to set said first power line to a resetting signal voltage thereby to reset charges stored in said holding capacitor and a parasitic capacitor of said current control element in an initial stage of the selection period of said drive circuit.

**Claim 43 (previously presented):** The image display apparatus of claim 1, further comprising a resetting transistor having a drain electrode connected to a node between the drive transistor and the pixel display element, a source electrode connected to one of the first power line and the second power line, and a gate electrode connected to a resetting signal line.

HAYES SOLOWAY P.C.  
3450 E. SUNRISE DRIVE  
SUITE 140  
TUCSON, AZ 85718  
TEL. 520.882.7623  
FAX. 520.882.7643

175 CANAL STREET  
MANCHESTER, NH 03101  
TEL. 603.668.1400  
FAX. 603.668.8567

**Claim 44 (currently amended):** An image display apparatus comprising:

a pixel having a drive transistor and a pixel display element which are electrically connected in a series between a first power line and a second power line, a holding capacitor electrically connected between a gate electrode of said drive transistor and a ~~source electrode of said drive transistor~~ junction node, and a selection transistor electrically connected between a signal line and the gate electrode of said drive transistor [.], said junction node being of between said pixel display element and a source electrode of said drive transistor.

**Claim 45 (previously presented):** An image display apparatus comprising:

a pixel having a drive transistor and a pixel display element which are electrically connected in a series between a first power line and a second power line, a holding capacitor electrically connected between a gate electrode of said drive transistor and a source electrode of said drive transistor, a selection transistor electrically connected between a signal line and the gate electrode of said drive transistor; and

a controller for discharging charges written in said holding capacitor for a predetermined time less than a frame time, and thereafter floating the gate electrode of said drive transistor thereby to hold the charges of the gradation pixel data stored in said holding capacitor.

HAYES SOLOWAY P.C.  
3450 E. SUNRISE DRIVE  
SUITE 140  
TUCSON, AZ 85718  
TEL. 520.882.7623  
FAX. 520.882.7643

175 CANAL STREET  
MANCHESTER, NH 03101  
TEL. 603.668.1400  
FAX. 603.668.8567